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NETWORK MALFUNCTION SELF-HEALING

HP INC

Network malfunction self-healing

Internet access becomes a common requirement on the PC / Notebook in the past years and user can get it through the connectivity devices (e.g. Ethernet, WiFi or WWAN…etc.) However, the user might meet the “yellow mark” issue on the connectivity devices and they might not know how to fix those issues. This disclosure is trying to fix those problems with a background service / daemon on behalf of user to provide the better network user experience.

When user is connecting PC/NB WiFi to wireless AP or plug in Ethernet cable to get Ethernet connection, they can connect but they can’t access the internet sometimes means the WiFi or Ethernet driver and FW are working fine but there are some problems happened at somewhere else…

Those yellow mark usually indicate the problems in:

- DHCP Client
- DNS Client

For the DHCP Client portion:

- When the PC/NB gets the WLAN / LAN connection, the DHCP client on the PC/NB will inform the DHCP server to assign the valid IP address, however, due to various Problems the IP might be invalid for example: 169.254.xxx.xxx, so our daemon will call the windows API to restart the DHCP client or ask for IP renew to solve the problem on behalf of the user

For the DNS Client portion:

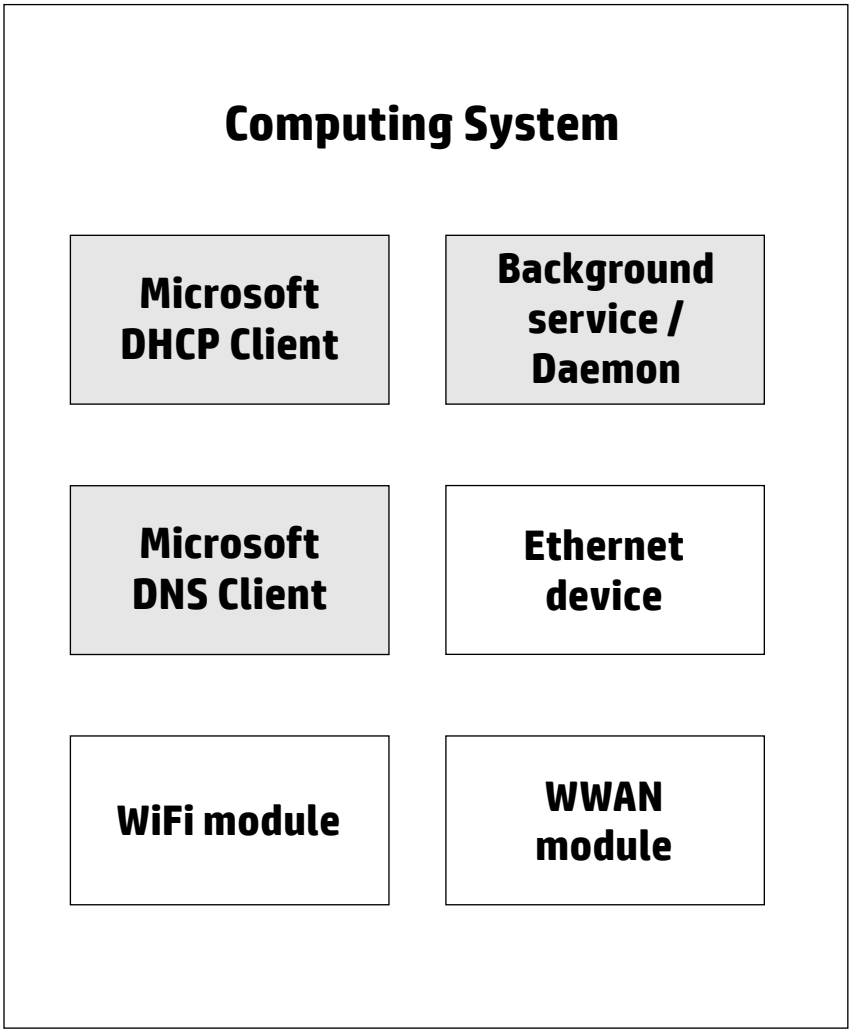
- Our daemon will monitor the windows system event when the PC/NB gets the WLAN/ LAN connection and if there is DNS error event ID for example: 407/408, our daemon will call the windows API to restart the DHCP client or ask for IP renew to solve the problem and also clean / flush the DNS cache (for example to remove the problematic routing table) on behalf of the user to avoid the DNS problem

For the DNS Client portion:

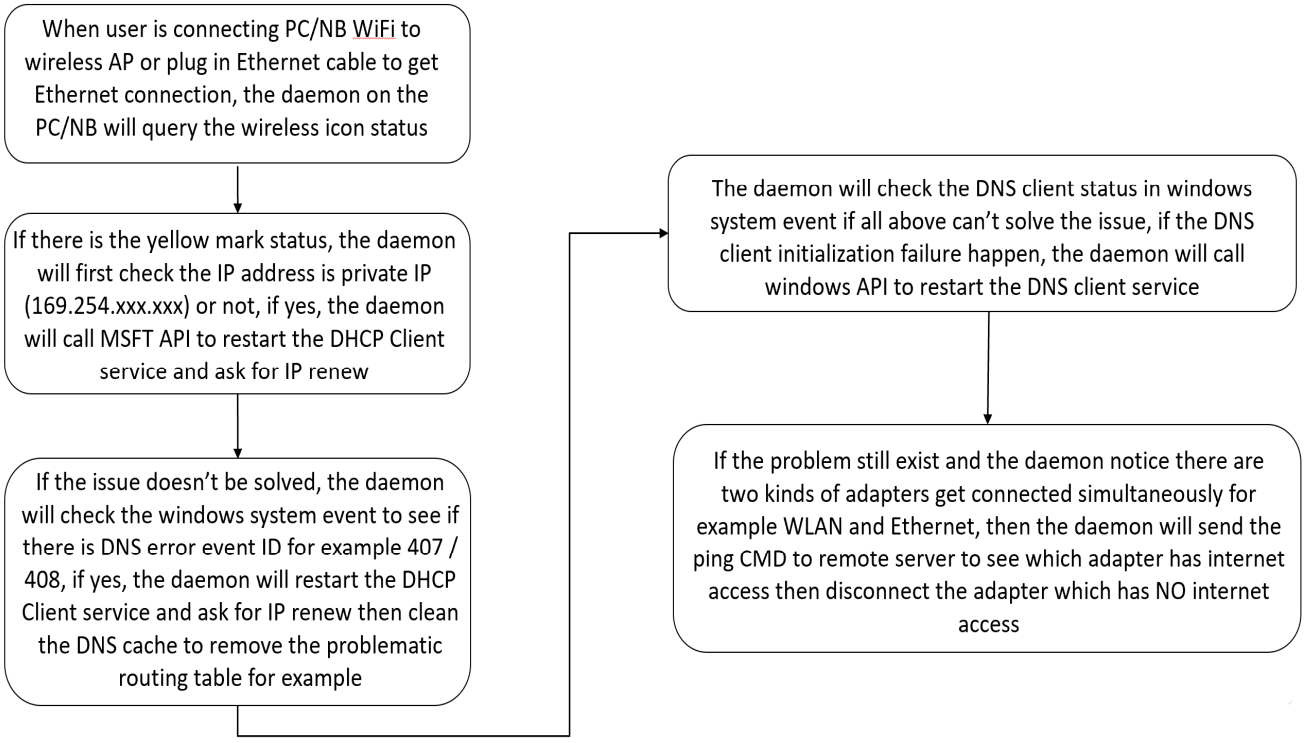
- The DNS client initialization failure will also cause the WLAN/LAN malfunction so our daemon will also monitor the DNS client status in the windows system event when the PC/NB gets the WLAN / LAN connection

Multiple network adaptor connected (for example both of WLAN and LAN are connected) might also cause the problem so our daemon will check if the network adaptor chosen by the OS (so far windows only allow one adaptor working at one time) has the internet access or not, if no, our daemon will disconnect the adaptor then let OS use another adaptor to access the internet

Function Block Diagram



Work-flow / How this works



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